IBIS Hybrid Japan Summit

Meeting Date: **October 22, 2024**
Meeting Location: **JEITA Ote Center Bldg. 1-1-3, Otemachi, Chiyoda-ku, Tokyo, Japan**

VOTING MEMBERS AND 2024 PARTICIPANTS

Altair	(JuneSang Lee)
AMD (Xilinx)	(Bassam Mansour), Tadashi Arai*
Analog Devices	Jermaine Lim-Abroguena, Toni Rose Racelis, Christine Bernal*, Prachi Shukla, Aprille Hernandez-Loyola, Francis Ian Calubag, Marvin Sinues, Vincent Paul Sabillo, Esther Grace Falate*, Keshav Mehrotra
Ansys	Curtis Clark, Marco Occhiali
Ansys Japan	Satoshi Endo*
Applied Simulation Technology	(Fred Balistreri)
Aurora System	(Dian Yang), Raj Raghuram, Hiroshi Ishikawa*
Broadcom	(Yunong Gan)
Cadence Design Systems	Kyle Lake, Ambrish Varma, Jared James, John Phillips, Kristoffer Skytte, Baolong Li, Takuya Moriya*, Ryo Sato*, Masahiro Nakahara*
Celestica	(Sophia Feng)
Cisco Systems	(Stephen Scearce), Hong-Man Wu
Dassault Systemes	Stefan Paret, David Duque
GE Healthcare Technologies	(Balaji Sankarshanan)
Google	(Hanfeng Wang)
Huawei Technologies	(Hang (Paul) Yan)
Infineon Technologies AG	(Christian Sporrer)
Instituto de Telecomunicações	(Abdelgader Abdalla)
Intel Corporation	Michael Mirmak, Hsinho Wu, Kinger Cai, Chi-te Chen, Sleiman Bou-sleiman
Keysight Technologies	Pegah Alavi, Ming Yan, David Banas, Fangyi Rao, HeeSoo Lee, Heidi Barnes, Yoshio Akashi*, Hayato Ogawa*, Satoshi Nakamizo*
Marvell	Steven Parker, Shaowu Huang, Wei Zhang
MathWorks	Graham Kus, Walter Katz
Micron Technology	Justin Butterfield, Masayuki Honda*
MST EMC Lab	Chulsoon Hwang, Zhiping Yang, Jiahuan Huang, Yifan Ding, Zheben Peng, Xiangrui Su, DongHyan "Bill" Kim
SI-Clarity	Doug Burns
Siemens EDA	Weston Beal, Arpad Muranyi, Randy Wolff, Matt Leslie, Scott Wedge, Todd Westerhoff, Zhichao Deng, Kunimoto Mashino*
STMicroelectronics	Anil-Kumar Dwivedi, Bhupendra Singh, Harsh Saini, Hemant Kumar Gangwar, Manda Padma Sindhuja, Manish Bansal, Nitin Kumar, Olivier Bayet, Pawan Verma, Pranav Singh, Rahul Kumar, Raushan Kumar, Shivam Soni, Gaurav Goel, Manisha Bisht, Charul Sharma, Manish Bansal, Mihir Pratap
Synopsys	Ted Mido, (Andy Tai), Luis Simoes, Pedro Monteiro, Luis Neves, António Eustáquio, Diogo Coelho, Nuno Lima, Alexandre Brito, Satoshi Fujino*
Teraspeed Labs	(Tom Dagastino), [Bob Ross]
Waymo	(Feng Wang), [Ji Zhang]
ZTE Corporation	(Zhongmin Wei), (Shunlin Zhu)
Zuken	(Ralf Brüning), Markus Bücker, Hirohiko Matsuzawa*, Kensuke Yoshijima*, Shinji Takahashi*
Zuken USA	Lance Wang*

OTHER PARTICIPANTS IN 2024

A&D Print Engineering Co., Ltd.	Ryu Murota*
Advantest Corporation	Hiroaki Takauchi*
Aet, Inc.	Chihiro Ueda*
Alps Alpine Co., Ltd.	Yasuaki Matoba*
Anacom	Filipe Saraiva
Apollo Giken Co., Ltd.	Toshiki Tamura*, Yoshito Usui*
Apple Inc.	Ying Cao
Applied Logix	Dan Chirpich
Ciena	Hugues Tournier, Kaisheng Hu
Cmk Corporation	Masaki Abe*
Cybernet Systems Co., Ltd.	Nobuhiro Kure*, Hideto Ishikura*
D-Clue Technologies Co., Ltd.	Kenzo Tan*
Design Methodology Lab	Moto Tanaka*
Etria Co., Ltd.	Toshihiko Makino*
Evident Corporation	Hironori Kishida*
Fict Limited	Syunsuke Fujisawa*
Fuji Electric Co., Ltd.	Masae Kawahara*
Fujitsu Limited	Hideki Takauchi*, Kumiko Teramae*, Kohei Ando*, Makoto Yoshino*, Takashi Kobayashi*
Furukawa Electric Co., Ltd.	Takumi Ohuchi*
Furuno Electric Co., Ltd.	Naoaki Sasao*
Global Unichip Japan	Masafumi Mitsuishi*
Hagiwara Solutions Co., Ltd.	Osamu Takauchi*
Hirel Logic	Jason Riddley
Hitachi Astemo, Ltd.	Keisuke Inukai*
Hitachi Ltd.	Yutaka Uematsu
Hitachi Solutions Technology, Ltd.	Sadahiro Nonoyama*
Hitachi, Ltd.	Goro Hamamoto*
Hoei Co., Ltd.	Tatsuya Chiba*
Hoya Corporation	Masayuki Hagiwara*
HRL Laboratories	John Carlson
IBM	Matteo Cocchini
Innotech Corporation	Hiroyuki Saito*
Interconnect Technologies Co., Ltd.	Takayuki Tsuzura*
Japan Aviation Electronics Industry Limited	Nrihiro Ando*
Japan Radio Co., Ltd.	Hiroto Katakura*
Jeita Ec Center	Masahiro Yamazaki*
Jeita Ec Center	Hisashi Saito*
Jujube LLC	Taiji Hosaka*
Kandou	Sherman Chen
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Kioxia Corporation	Yasuo Ohtsuka*, Noriaki Dobashi*, Yasuhiko Iguchi* Kunio Ohta*

Kioxia Systems Co., Ltd.	Tomomichi Takahashi*, Yasushi Yamakawa*
Kioxia, Japan	Masato Kanie*
KT Smart Future-Creations	Keita Miyasato
Kyoden Co., Ltd.	Takao Saito*
Md Systems Co., Ltd.	Hitoshi Nakajima*
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Meta	Ashkan Hashemi, Himanshu Modi
Mirise Technologies	Hirokazu Sugimoto*
Mitsubishi Electric Corporation	Masaki Watanabe*
Mitsubishi Electric Engineering Company Limited	Toshiki Yasumura*, Akira Nishiumi*
Modech Inc.	Yasuo Kawahara*
Molex Japan Llc	Hiroyuki Yajima*
Nintendo Co., Ltd.	Koji Fujimoto*
Northrop Grumman Corp.	Will McCaffrey
Nuvoton Technology Corporation	Yutaka Yamada*, Tatsuo Miyake*
Oki Electric Industry Co., Ltd.	Kenichi Sato*
Panasonic Connect Co., Ltd.	Shinichi Tanimoto*
Panasonic Its Co., Ltd.	Erina Koshikawa*
Privatech Inc.	Kazuo Ogasawara*
Pwb Corporation	Toru Ohisa*
Qualcomm	Scott Powers
Rapidus Corporation.	Atsushi Yoshimoto*
Renesas Electronics Corporation	Kazunari Yamada*, Yoshihiro Tanaka*, Masato Suzuki*
Rivos	Yanshen Wang
Rohm Co., Ltd.	Nobuya Sumiyoshi*
SAE ITC	Tammy Patton, Rich Demary
Samsung Electronics	Jun-Bae Kim, Changsoo Yoon
Saxa, Inc.	Takayuki Sato*
Saxa, Inc.	Tatsuo Matsuoka*
Seiko Epson Corporation	Jyunichi Endo*, Kenichi Ohe*, Masaaki Ito*, Takuto Wada*, Ryoichi Okada*
Seiko Npc Corporation	Yuichi Sawaki*
Signal Edge Solutions	BenjAMIn Dannan
Si-Guys	Donald Telian
Sinops Inc.	Tetsuhisa Mido*
Socionext America	Futoshi Terasawa
Socionext Inc.	Watari Tanaka*, Ohmi Hajime*, Motoaki Matsumura*
Socionext Inc.	Megumi Ohno*, Kohei Ishii*, Ryoichiro Nakamura*
Sohwa & Sophia Technologies	Daisuke Kaneko*
Sony Global Manufacturing & Operations Corporation	Yoshihito Imai*, Yuito Tsuji*, Yuichi Ikeya*
Sony Semiconductor Solutions Corporation	Toru Fujii*, Kazuki Murata*
Tech Dream Inc?	Yoshihiro Fukawa*
Tektronix & Fluke Corporation	Kohdai Aoyama*, Katsuhiko Suzuki*
Teraspeed Labs	[Bob Ross]
Tokyo Drawing Ltd.	Masahiko Nakamura*, Naoya Iisaka*
Toshiba Corporation	Yasuki Torigoshi*
Toshiba Development & Engineering Corporation	Nobuyuki Kasai*, Kohei Imamura*

Toyobo Co.	Saki Kawano
UNIST	Jingook Kim
University of Illinois Urbana-Champaign	Jose Schutt-Aine
Yamaha Corporation	Hiroyuki Kai*
Zhejiang University	Ling Zhang

In the list above, attendees present at the meeting are indicated by “*” Those submitting an email ballot for their member organization for a scheduled vote are indicated by “^.” Principal members or other active members who have not attended are in parentheses “( ).” Participants who no longer are in the organization are in square brackets “[ ].”

UPCOMING MEETINGS

The connection information for future IBIS teleconferences is as follows:

Microsoft Teams meeting
Join on your computer or mobile app
Click here to join the meeting

Join with a video conferencing device
106010980@teams.bjn.vc
Video Conference ID: 114 666 897 5
Alternate VTC dialing instructions

Or call in (audio only)
+1 267-768-8015,554664847# United States, Philadelphia
Phone Conference ID: 554 664 847#
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All teleconference meetings are 8:00 a.m. to 9:55 a.m. US Pacific Time. Meeting agendas are typically distributed seven days before each Open Forum. Minutes are typically distributed within seven days of the corresponding meeting.

NOTE: "AR" = Action Required.

SUMMIT MINUTES - SUMMARY AND LINKS

The 2024 IBIS Summit at Tokyo, Japan was held October 22, 2024 with both online and in-person attendance as a hybrid event hosted by JEITA at Ote Center Bldg. 1-1-3, Otemachi, Chiyoda-ku, Tokyo, Japan. The JEITA organization provided the conference facility and online hosting support.

In attendance, there were approximately 113 individuals representing 74 companies, including representatives from 10 IBIS member organizations

This IBIS Summit event was sponsored by the following:

- IBIS Open Forum
- Japan Electronics and Information Technology Industries Association (JEITA)
- ANSYS, Inc.
- Apollo Giken Co., Ltd.
- Keysight Technologies Japan K.K.
- KIOXIA Corporation
- Seiko Epson Corporation
- Toshiba Corporation
- Zuken Inc.

The following minutes capture the agenda and summarize presentations. A recording is not currently available. However copies of each presentation have been made available at this link:

Link: https://ibis.org/summits/oct24a/

OFFICIAL OPENING AND AGENDA

(Start 00:09:10)

Lance Wang (Chair, IBIS Open Forum, Zuken, USA)

A copy of the agenda and presentations provided during this IBIS summit are available at this link:

Link: https://ibis.org/summits/oct24a/

HYBRID ASIAN IBIS SUMMIT – JAPAN, 2024, MEETING WELCOME

(Start 00:09:15)

IBIS Open Forum

JEITA EDA Model Specialty Committee

JEITA EC-Center ECALGA

Facilitator: Hayato Ogawa (Keysight Technologies, Japan)

The presentation included the following topics:

- Thanks to attendees for joining us at the Asian IBIS Summit (Japan) again this year.
- Due to many requests in the survey, this year's IBIS Summit will be held as a hybrid face-to-face and online meeting.
- We are very happy to have supported the holding of the Summit by the IBIS Open Forum in Japan for 19 years.
- We would like to thank the IBIS Open Forum officers, speakers, and JEITA / EC Center staff for their great cooperation in preparing for this summit.
- New “Discussion Room with IBIS Open Forum”
    - What is “Discussion Room with IBIS Open Forum?”
    - What is the purpose of this session?
    - What’s today’s theme?
    - First attempt at this format. We look forward to your opinions on how we can make it better.
- About EDA Model Specialty Committee
- Current Status of the EDA models and our objective
    - IBIS summit held in Japan
    - Management of website
    - Other events
- ECALGA: Electronic Commerce ALliance for Global business Activity

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

IBIS CHAIR’S REPORT

(Start 00:09:25)

Lance Wang (Zuken, USA)

(Chair, IBIS Open Forum)

The presentation included the following topics:

IBIS has 28 members currently and presented a chart of annual membership since 1995. A chart was provided showing membership on an annual basis, where the increase and decrease of membership had been due to acquisitions of companies by other companies or startups of new product companies. There has been some discussion to add membership to include rate tiers with a special rate for smaller companies.

Lance presented on the following:

- 28 IBIS Members
    - 2 new members.
- Roster of IBIS Officers June 2024 - May2025
    - Summary of elected individuals representing organizations on board
- IBIS Meetings (weekly teleconferences)
- IBIS Open Forum teleconference every 3 weeks (Fridays, 08:00 PT)
- IBIS Summit meetings (USA and international)
    - DesignCon, IEEE SPI, IEEE EMC+SIPI, Shanghai, Tokyo (JEITA-organized)
- Participants: ~290 in 2023 (~280 in 2022)
- SAE Industry Technologies Consortia is the parent organization of the IBIS Open Forum
    - SAE ITC provides financial, legal, and other services to the IBIS Open Forum
    - SAE ITC representatives: Tammy Patton, Phyllis Gross, and Rich Demary
    - Link: https://www.sae-itc.com/
- Task Groups
    - Typically meet on weekly basis
    - Advanced Technology Modeling (ATM) task group
        - Chair: Arpad Muranyi, Siemens EDA
        - https://ibis.org/atm_wip/
        - Develop non-interconnect technical BIRDs
    - Editorial task group
        - Chair: Michael Mirmak, Intel
        - https://ibis.org/editorial_wip/
        - Produce IBIS specification documents
    - Interconnect task group
        - Chair: Michael Mirmak, Intel
        - https://ibis.org/interconn_wip/
        - Develop on-die/package/module/connector interconnect modeling BIRDs
    - Quality task group
        - Acting Chair: Randy Wolff, Siemens EDA
        - https://ibis.org/quality_wip/
        - Oversee IBISCHK parser testing and development
- IBIS Milestones
    - Various accomplishments and industry-associated activities
- Planning for IBIS Version 8.0
    - Listing of BIRD IDs officially considered for IBIS 8.0 specification content
- BIRD description (Buffer Issue Resolution Document)
    - Summary of present BIRDs considered for adoption
- TSIRD description (Touchstone Issue Resolution Document)
    - Summary of present TSIRDs considered for adoption

- IBISCHK Development
    - IBISCHK Parser Issue Reports (BUGs)
    - Summary of present BUGs considered for resolution
- TSCHK Development
    - TSCHK Parser Issue Reports (BUGs)
    - Summary of present BUGs considered for resolution
    - How to submit bug reports for IBISCHK and TSCHK/TSCHK2
- Recent and Future Developments in IBIS
    - Expanded system-level perspective
    - Power Integrity focused modeling
    - Multi-level analog buffer modeling
    - Interconnect modeling
    - Quality and Testing
    - Specification Clarification
- Invitation to participate in IBIS Open Forum and Task Groups:
    - “What else should we be looking at? Bring your ideas!”
    - Success of IBIS and Touchstone depends on active participation and volunteering
    - Task groups for technical discussion and document editing
    - IBIS email reflectors
    - Open Forum teleconferences for event planning and voting
    - Summit presentations
    - IBIS Board and task group volunteering
    - Writing BIRDs – Buffer Issue Resolution Documents
        - Official method for submitting proposed change to IBIS specification
        - Many developed collaboratively in task groups
        - Discussed and voted on in Open Forum meetings
- IBIS Website Resources
    - IBIS Summits
    - Task Group information
    - Member FAQ
    - Specification documents
    - BIRDs / ISSIRDs / TSIRDs
    - Email support
    - Syntax Parser Downloads
    - Link: https://www.ibis.org

(conclusion of IBIS Chair’s Report)

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

THE PERSPECTIVE OF AN IBIS USER

(Start 00:09:45)

Yoshiaki Nishi (ASTRODESIGN, Japan)

The presentation included the following topics:

- Review: Electrical Quality
- Serial and Parallel Data Transmission
- Serial Data Transmission’s Case
- Parallel Data Transmission’s Case
- Conclusion

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

CHALLENGES AND PROPOSALS IN DEVELOPING MODELS FOR HIGH-SPEED MEMORY INTERFACE

(Start 00:10:10)

Minori Yoshitomi (KIOXIA, Japan)

The presentation included the following topics:

- Challenges of IBIS models due to High-Speed Memory Interface
- Package Model Challenges
- Equalizer Model Challenges
- Summary

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

IBIS QUALITY 3.0 CHECKLIST SPREADSHEET

(Start 00:10:35)

Weston Beal (Siemens EDA, USA)

The presentation included the following topics:

- Purpose of the IBIS Quality Specification
- Provide standards for validating, correlating and replicating simulation results
- IBIS Quality Version 1.0 (Basic Checks)
  - Definitions of IQ0, IQ1, IQ2a, IQ2b, IQ3
- IBIS Quality Version 2.0 (Advanced Checks)
  - Definitions of IQ0-IQ3
  - Quality Level Modifiers
    - Definitions of extensions M, S, G, X
- IBIS Quality Checklist version 3.0
  - Is a spreadsheet file

    - Filename syntax format definition
    - Provides a general guideline on validating the quality of the IBIS file
    - Documents results of quality check based on IBIS Quality specification 3.0
- Using the IBIS Quality Checklist
    - Illustration of workflow provided in presentation
- Conclusions
    - “Keep asking model vendors for IBIS Quality checklist!”

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

BREAK

DISCUSSION ROOM WITH IBIS OPEN FORUM, THEME #1 ABOUT IC PACKAGE MODELING

(Start 00:11:20)

Facilitator: Hayato Ogawa (Keysight Technologies, Japan)

The presentation included the following topics:

- Request #1
    - Multi-port support for Interconnect Model
- Request #2
    - Providing supplementary information regarding the use of EMD model and Interconnect model
- Note: See slide presentation for notes and discussion

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

DISCUSSION ROOM WITH IBIS OPEN FORUM, THEME #2 DEFINITION OF QUALITY FOR IBIS-AMI

(Start 00:11:50)

The presentation included the following topics:

- IBIS Quality Specification defines only IBIS models. What is IBIS Open Forum opinion on how to ensure quality regarding IBIS-AMI (e.g the AMI portion of a model)
- Note: See slide presentation for notes and discussion

Copy of presentation for review at link: https://ibis.org/summits/oct24a/

CLOSING REMARKS

(Start 00:12:20)

Lance Wang (Zuken, USA)

(Chair, IBIS Open Forum)

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- IBIS Open Forum
- Japan Electronics and Information Technology Industries Association (JEITA)
- ANSYS, Inc.
- Apollo Giken Co., Ltd.
- Keysight Technologies Japan K.K.
- KIOXIA Corporation
- Seiko Epson Corporation
- Toshiba Corporation
- Zuken Inc.

The IBIS summit meeting adjourned.

==

NOTES

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This meeting was conducted in accordance with SAE ITC guidelines.

All inquiries may be sent to info@ibis.org. Examples of inquiries are:

- To obtain general information about IBIS.
- To ask specific questions for individual response.
- To subscribe to or unsubscribe from the official ibis@freelists.org and/or ibis-users@freelists.org email lists (formerly ibis@eda.org and ibis-users@eda.org):
  - https://www.freelists.org/list/ibis
  - https://www.freelists.org/list/ibis-users
- To subscribe to or unsubscribe from one of the Task Group email lists: ibis-macro@freelists.org, ibis-interconn@freelists.org, ibis-editorial@freelists.org, or ibis-quality@freelists.org:
  - https://www.freelists.org/list/ibis-macro
  - https://www.freelists.org/list/ibis-interconn
  - https://www.freelists.org/list/ibis-editorial
  - https://www.freelists.org/list/ibis-quality
- To inquire about joining the IBIS Open Forum as a voting Member.
- To purchase a license for the IBIS parser source code.
- To report bugs or request enhancements to the free software tools: ibischk7, tschk2, icmchk1, s2IBIS, s2IBIS2 and s2iplt.

The BUG Report Form for ibischk resides along with reported BUGs at:

https://ibis.org/bugs/ibischk/
https://ibis.org/ bugs/ibischk/bugform.txt

The BUG Report Form for tschk2 resides along with reported BUGs at:

https://ibis.org/bugs/tschk/
https://ibis.org/bugs/tschk/bugform.txt

The BUG Report Form for icmchk resides along with reported BUGs at:

https://ibis.org/bugs/icmchk/
https://ibis.org/bugs/icmchk/icm_bugform.txt

To report s2IBIS, s2IBIS2 and s2iplt bugs, use the Bug Report Forms which reside at:

https://ibis.org/bugs/s2IBIS/bugs2i.txt
https://ibis.org/bugs/s2IBIS2/bugs2i2.txt
https://ibis.org/bugs/s2iplt/bugsplt.txt

Information on IBIS technical contents, IBIS participants and actual IBIS models are available on the IBIS Home page:

https://ibis.org/

Check the IBIS file directory on IBIS.org for more information on previous discussions and results:

https://ibis.org/directory.html

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SAE STANDARDS BALLOT VOTING STATUS (attendee X; absent -)

Organization	Interest Category	Standards Ballot Voting Status	Sept 13, 2024	Oct 4, 2024	Oct 22, 2024
Altair	User	Inactive	-	-	-
AMD (Xilinx)	Producer	Inactive	-	-	X
Analog Devices	Producer	Inactive	-	-	-
Ansys	User	Active	X	X	X
Applied Simulation Technology	User	Inactive	-	-	-
Aurora System	User	Inactive	-	-	X
Broadcom Ltd.	Producer	Inactive	-	-	-
Cadence Design Systems	User	Active	X	X	X
Celestica	User	Inactive	-	-	-
Cisco Systems	User	Inactive	-	-	-
Dassault Systems	User	Inactive	-	-	-
GE Healthcare Technologies	User	Inactive	-	-	-
Google	User	Inactive	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-
Infineon Technologies AG	Producer	Inactive	-	-	-
Intel Corp.	Producer	Active	X	X	-
Keysight Technologies	User	Inactive	-	-	X
Marvell	Producer	Inactive	-	-	-
MathWorks	User	Active	X	X	-
Micron Technology	Producer	Inactive	-	-	X
MST EMC Lab	User	Inactive	-	-	-
SI-Clarity	User	Active	X	X	-
Siemens EDA	User	Active	X	X	X
STMicroelectronics	Producer	Inactive	-	-	-
Synopsys	User	Active	X	X	X
ZTE Corp.	User	Inactive	-	-	-
Zuken	User	Active	X	X	X

= Temporarily not a voting member

Criteria for SAE member in good standing:
- Must attend two consecutive meetings to establish voting membership.
- Membership dues current
- Must not miss two consecutive meetings (voting by email counts as attendance)

Interest categories associated with SAE standards ballot voting are:
- Users - members that utilize electronic equipment to provide services to an end user.
- Producers - members that supply electronic equipment.

General Interest - members are neither producers nor users. This category includes, but is not limited to, government, regulatory agencies (state and federal), researchers, other organizations, and associations, and/or consumers.